REMARKS

Claims 1, 13, 14, 16/15 and 37 stand rejected, with claims 16/13, 16/14, 18, 20, 32, 33, 38 and 39 objected to as improper. Newly written claims 40-66 are offered for consideration. Accordingly, claims 1, 13, 14, 16, 18, 20, 32, 33 and 37-66 remain in the application.

Attached hereto is a marked-up version of the changes made to the specification and claims by the current amendment. The attached page(s) is captioned "**Version With Markings To Show Changes Made**."

Claims 1, 13, 14 and 37 stand rejected under 35 USC §103 as unpatentable over Ellzey (U.S. Patent 3,023,860) in view of Thomas (U.S. Patent 5,460,317). It is noted that each of applicants' independent claims 1, 13 and 17 (and claim 14 dependent on claim 13) require "butt" welding or a "butt welded joint."

The Ellzey patent, cited by the Examiner as disclosing aircraft body construction with welds, teaches conventional overlapping joints comprising an inner reinforcement and an outer surface element. The elements are made of continuous lengths or strips of sheet metal (column 1, lines 51-54, and column 2, lines 26-33). Quite clearly, where there is overlapping sheet material one cannot have a "butt" joint. Therefore, one cannot possibly employ friction stir welding to achieve a "butt welded joint." Quite clearly, the Ellzey patent teaches away from any welded butt joint and instead suggests the need for overlapping joints at every place that welding occurs.

The Thomas reference, which teaches the basic concept of friction stir welding, does not contain any suggestion that this can be applied to the aerospace industry and in particular to the creation of aircraft components by friction stir butt welding.

Specifically, the Examiner is reminded that the Court of Appeals for the Federal Circuit has held that "the PTO has the burden under Section 103 to establish a *prima facie* case of obviousness." *In re Fine*, 5 USPQ2d 1596, 1598 (Fed. Cir. 1988). None of the references teach friction stir butt welding in the aerospace component field.

With respect to the combination of references, the Federal Circuit has also held that "teachings of references can be combined *only* if there is some suggestion or incentive to do so." *Id.* at 1599. Here the Examiner has provided no support for the allegation of it being obvious to combine these references.

The Federal Circuit has also opined that it is "error to find obviousness where references 'diverge from and teach away from the invention at hand'." *Id.* As noted above, the references all are believed to teach solutions to problems other than the creation of aerospace components and thus teach away from the claimed invention.

With respect to the alleged motivation for combining these references, the Examiner has provided no support. In the recent case of *In re Rouffet* , 47 USPQ2d 1453, 1458 (Fed. Cir. 1998), the Court held that "the examiner must show reasons that the skilled artisan, confronted with the same problems as the inventor and with no knowledge of the claimed invention, would select the elements from the cited prior art references for combination in the manner claimed." Nowhere in either of the cited references does there appear to be any recognition of the problem solved by the claimed invention.

Claim 16/15 stands rejected under 35 USC §112 (second paragraph) as being indefinite, as claim 15 was previously cancelled. Claim 16 has been amended to depend only from claim 13, thereby obviating any further objection to this claim.

Claims 18, 20, 32, 33, 38 and 39 are objected to as being in improper multiple dependent form. These claims have been amended and revised to be singly dependent, thereby obviating any further objection thereto.

The Examiner's indication of allowable subject matter in claims 16/13 and 16/14 is very much appreciated. However, it is believed unnecessary to rewrite these claims in independent form, as the subject matter of claim 13 is clearly not obvious in view of the cited references for the arguments noted above.

Applicants also submit newly written claims 40-66 which cover the subject matter of the previous multiple dependent claims. Consideration and allowance of these additional claims is respectfully requested.

Having responded to all objections and rejections set forth in the outstanding Official Action, it is submitted that claims 1, 13, 14, 16, 18, 20, 32, 33 and 37-66 are in condition for allowance and notice to that effect is respectfully solicited. In the event the Examiner is of the opinion that a brief telephone or personal interview will facilitate allowance of one or more of these claims, he is respectfully requested to contact applicants' undersigned representative.

Respectfully submitted,

NIXON & VANDERHYE P.C.

By: _____

Stanley C. Spooner
Reg. No. 27,393

SCS:kmm
1100 North Glebe Road, 8th Floor
Arlington, VA 22201-4714
Telephone: (703) 816-4000
Facsimile: (703) 816-4100

VERSION WITH MARKINGS TO SHOW CHANGES MADE

IN THE CLAIMS

16. *(Amended)* A structural airframe component as in claim 13, [14 or 15] in which the thickness of the component material varies across the weld joint.

18. *(Amended)* A structural airframe component as in [any of claims 13 to 17] claim 13 in which the component comprises at least two skin panels friction stir butt welded together.

20. *(Amended)* A structural airframe component as in [any of claims 13 to 19] claim 13 in which the at least one friction stir butt welded joint joins at least two extruded integrally-stiffened wing panel sections.

32. *(Amended)* A structural airframe component as in [any of claims 13 to 17] claim 13 in which the said weld joins a wing skin panel and one of a spar and rib.

38. *(Amended)* An airframe for an aircraft including at least one structural airframe component according to [any of claims 13 to 34, or 37] claim 13.

39. *(Amended)* An aircraft wing including at least one structural airframe component according to [any of claims 13 to 34, or 37] claim 13.

-- 40. *(New)* A structural airframe component as in claim 14 in which the thickness of the component material varies across the weld joint.

41. *(New)* A structural airframe component as in claim 14 in which the component comprises at least two skin panels friction stir butt welded together.

42. *(New)* A structural airframe component as in claim 16 in which the component comprises at least two skin panels friction stir butt welded together.

43. *(New)* A structural airframe component as in claim 14 in which the at least one friction stir butt welded joint joins at least two extruded integrally-stiffened wing panel sections.

44. *(New)* A structural airframe component as in claim 16 in which the at least one friction stir butt welded joint joins at least two extruded integrally-stiffened wing panel sections.

45. *(New)* A structural airframe component as in claim 18 in which the at least one friction stir butt welded joint joins at least two extruded integrally-stiffened wing panel sections.

46. *(New)* A structural airframe component as in claim 14 in which the said weld joins a wing skin panel and one of a spar and rib.

47. *(New)* A structural airframe component as in claim 16 in which the said weld joins a wing skin panel and one of a spar and rib.

48. *(New)* A structural airframe component as in claim 46 in which a part of the said one of a spar and rib forms part of an aerodynamic profile of the wing.

49. *(New)* A structural airframe component as in claim 47 in which a part of the said one of a spar and rib forms part of an aerodynamic profile of the wing.

50. *(New)* An airframe for an aircraft including at least one structural airframe component according to claim 14.

51. *(New)* An airframe for an aircraft including at least one structural airframe component according to claim 16.

52. *(New)* An airframe for an aircraft including at least one structural airframe component according to claim 18.

53. *(New)* An airframe for an aircraft including at least one structural airframe component according to claim 40.

54. *(New)* An airframe for an aircraft including at least one structural airframe component according to claim 41.

55. *(New)* An airframe for an aircraft including at least one structural airframe component according to claim 42.

56. *(New)* An airframe for an aircraft including at least one structural airframe component according to claim 20.

57. *(New)* An airframe for an aircraft including at least one structural airframe component according to claim 43.

58. *(New)* An airframe for an aircraft including at least one structural airframe component according to claim 44.

59. *(New)* An airframe for an aircraft including at least one structural airframe component according to claim 45.

60. *(New)* An airframe for an aircraft including at least one structural airframe component according to claim 32.

61. *(New)* An airframe for an aircraft including at least one structural airframe component according to claim 46.

62. *(New)* An airframe for an aircraft including at least one structural airframe component according to claim 47.

63. *(New)* An airframe for an aircraft including at least one structural airframe component according to claim 33.

64. *(New)* An airframe for an aircraft including at least one structural airframe component according to claim 48.

65. *(New)* An airframe for an aircraft including at least one structural airframe component according to claim 49.

66. *(New)* An airframe for an aircraft including at least one structural airframe component according to claim 37. --